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TC 2800 MAIL ROOM

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Inventor: Herbert R. Floyd

Title: P.M.E. OF GOD ON GENERATING STATIONS

Primary Examiner: Mr. Nicholas Ponomarenko

Art Unit 2834

2 1/2 # letter to
the Draftsmen

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ABW

Commissioner of Patents and Trademarks
Washington, District of Columbia 20231

"AMENDMENT A"

DRAWING AMENDMENT UNDER CFR 1.123

Sir:

Battery chargers are, usually, designed without concern for efficiency, however the heat generated by low efficiency chargers can present a problem. Now for those applications, the charger shown in FIG. 5B delivers 2.5 A with efficiency, as high as 96 percent. IC1 is a buck-mode switching regulator, which controls the external power switch Q1 including a synchronous rectifier. IC1 is defined via a charge pump for generating the positive gate-drive voltage, thus required by Q1. The battery charging current generates a voltage across the 25-M resistor (R3) which is amplified by the op amp, and provided as positive-voltage feedback to IC1. This feedback empowers the chip to maintain the charging current at 2.5 A. While charging, the circuit can, also, supply current to any separate load. This is accomplished through a limit set via current-sense transformer T1, and sense resistor R1. Seeing that T1 improves efficiency by lowering power dissipation in R1, this transformer turns ratio 1:70 routes, only, 1/70 of the total battery-plus-load current via R1. This produces a feedback voltage that empowers IC1 to limit the encyclopedic current to a level compatible with the system and associated components.